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RAIL-ROAD NEWS.

Fast Locomotives.

The Albany Knickerbocker quotes the extract we made from the London Mechanics' Magazine about Mr. Fairbairn contracting for new locomotives to run 113 miles in two hours with loaded trains, and says, "that's nothing to brag of. The locomotive Dutchess has run with six loaded cars at a rate which would give us over 120 miles in two hours. Some four weeks since she run under the management of Conductor Vermule, from Fonda to Poughkeepsie, 41 miles, in 39½ minutes. If Mr. Bull is going for speed he musn't talk about 113 miles in two hours. We have got some hand cars that will do that."

The Knickerbocker's remarks may do very well for those who are not acquainted with the facts, but we have no engines which run as fast as those on the English roads, our tracks are not so good, and our locomotives are not so large; these are the reasons, and the only ones, for the superior speed of the English trains some of which run 20 miles per hour faster than our fastest. If the locomotive Dutchess has run loaded at the rate of 60 miles per hour, it is nothing to Crampton's large engine, which run at the rate of 100 miles per hour. In the course of ten years from the present date, we hope to see many of our railroads fenced in, with double tracks, no cross-ways, and with no narrow curves, and then our locomotives can be driven just as fast as those in England. It would be madness to try it at present, on the very best road in our country.

New Suspension Bridge at Niagara.

It is designed to construct a new suspension bridge over the present one at Niagara Falls, to be a railroad bridge capable of carrying heavy trains.

The bridge will form a single span of 800 feet in length. It is to serve as a connecting link between the railroads of Canada and New York State, and to accommodate the common travel of the two countries. The upper floor, which supports the railroad, will be 24 feet. The anchorage will be formed by sinking eight shafts in the rock, 25 feet deep, at the bottom of which will be massive cast-iron plates, firmly held down by solid mason work. Saddles of cast-iron will support the cables on the towers, capable of supporting the pressure of 6000 tons. The towers are to be 60 feet high, 16 feet wide at the base and 8 at the top. Weight of timber in the bridge, 910,130 lbs.; wrought-iron and suspenders, 115,120 lbs.; castings, 44,333 lbs.; rails, 66,770 lbs.; cables between the towers, 335,400 lbs. When the whole is covered with a locomotive and train of cars, it is estimated that it will have to sustain a weight of 1,273 tons, which amount of burden, though not likely often to occur, is less than is provided for. It will be the longest railroad bridge between the points of support in the world.

The Report on the Woodworth Patent is now finished—the extension was not granted.

NEW BRICK MACHINE.

Figure 1.

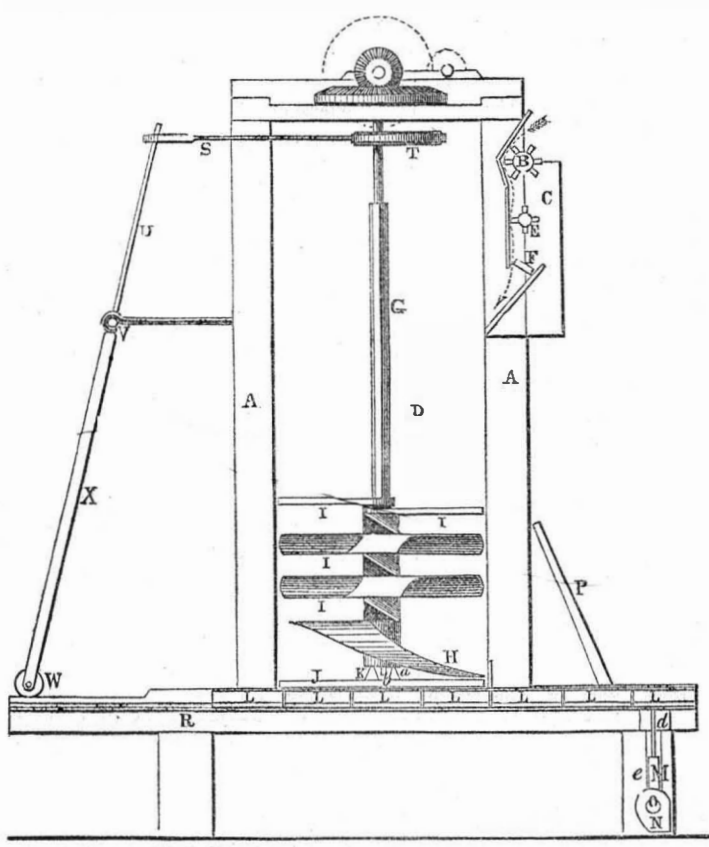
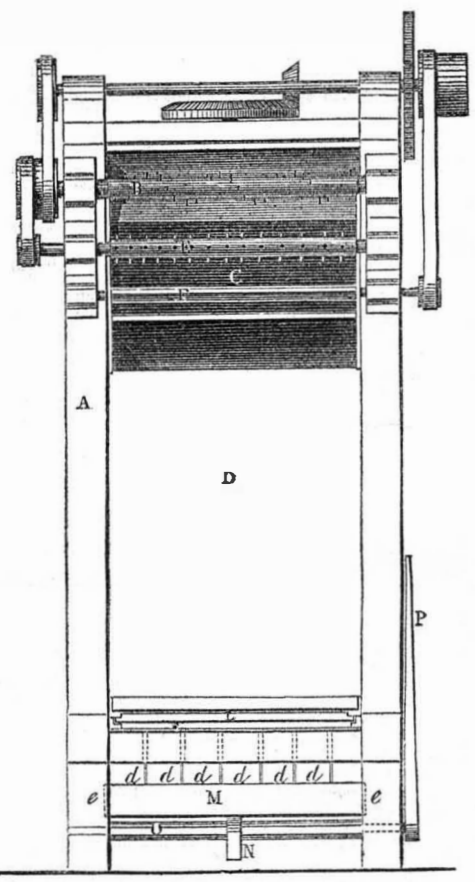


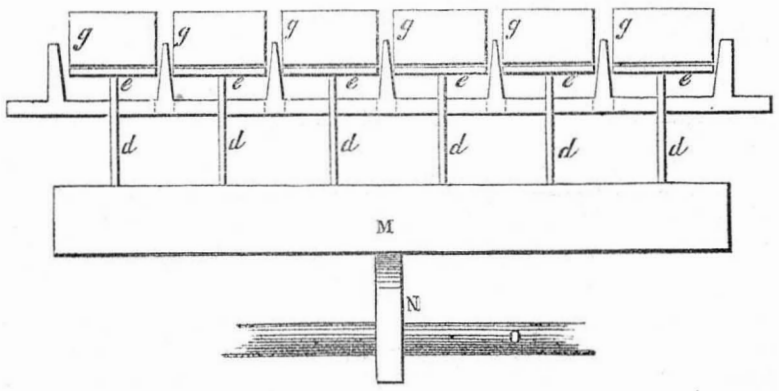
Figure 2.



The annexed engravings are views of improvements on brick presses, invented by F. H. Smith, of the City of Baltimore, who has taken measures to secure a patent. Figure 1 is a side elevation, the nigh side pieces of the frame being removed. Figure 2 is a back view of the same. Figure 3 is a front view of one of the mould boxes; the nigh side of the mould being removed in order to show the movable or sliding bottoms of the moulds, and the manner in which they are operated upon by the vertical slide rods. The same letters refer to like parts on all the figures.

A is the frame of the machine; B is a roller with a series of teeth in spiral form on it; this is a crusher or lump breaker. It is placed at the back of the machine within a hopper, C, which has a passage to the clay box, D; the sides of the box are removed in figure 1; E is a pulverizer formed by placing a series of teeth on a shaft; underneath this is another pulverizer, F, formed of a flat or square bar the office of the pulverizers is to reduce the small particles, to dust, which come from crusher B. The clay being introduced into the hopper, C, is reduced as shown in fig. 1, and enters the clay box, D. The two pulverizers are not always required, one suffices when the clay is dry, but when moist both pulverizers are required; G is a vertical shaft placed in the centre of the clay box, D; it has the segment of a screw thread H, on its lower end, and a series of knives, I, placed above it. Water is admitted into the clay box, D, and as these knives revolve on shaft G, the clay is tempered and fitted for moulding; J is a frame at the bottom of the clay box, D; it may be said to consist of one frame containing sixteen smaller ones united together, each fitting over a mould; at the centre of this frame there is a solid surface on which is placed the seat, K, formed of a tubular projection, *a*, having its centre in the form of an inverted cone, and filled with wood, *b*, having a hole drilled in it as a bearing for shaft G. The mould boxes are represented by the letters L, each mould has a sliding bottom, *c*; when the mould bexes are filled, th e are thrown upwards by the slide rods, *d* which are set in a cross bar M, the ends of which fit into recesses, *e e*; N is a cam under the cross bar and hung on a shaft, O, which has a lever, P, on one end. By operating this lever the cross bar, M, is raised, which raises the slide rods, *d*, likewise the sliding bottoms, *c*, and the bricks, *g*, fig. 3. The mould boxes move upon ways, R, and pass under the frame, J, and box D. These mould boxes are moved by the lever, S, which is operated by a revolving eccentric, T, on shaft G. The outer end of lever S, is connected to lever U, which is attached to the rock shaft, V, having its bearings in projections. This rock shaft has a frame, X, with a roller W, on its lower part, which acts against the moulds, as it is moved towards the clay box and thus forces the mould boxes along on the ways, R; the mould boxes therefore are put in at one side empty, and pushed out at the other side full, by the roller, W, pushing in the empty box. The moulded bricks are taken to the proper drying place after being moulded. The machine is exceedingly simple in its arrangement, construction, and operation, and presents claims of no ordinary interest.

Figure 3.



More information may be obtained by letter addressed to the inventor.

Barrel Machinery.

We learn by the Elmira (N. Y.) Gazette, that Wm. Trapp, & Co., have put in operation a large shop in that place for the manufacture of barrels and firkins by their patent machinery. Pails, kegs, tubs, and all kinds of cooper ware are made by Trapp's machinery.

A Perilous Situation.

A short time since, as a carriage containing a party of Yorkers was crossing the suspension bridge across the Niagara, and when about half way over, the bridge was struck by a gust with appalling fury. The wind blew a perfect tornado, while the air was filled with driving hail and rain, and so potent was the wind that the bridge swayed literally to and fro, ten or a dozen feet, making one giddy with its vibrations. So appalling was the commotion that the horses fell upon their sides on the bridge, while the driver, in the extremity of his terror, seemed incapable of making the least effort to move from the perilous spot. The inmates of the carriage could with difficulty keep their seats, and for a short time expected nothing else but to be precipitated into the surging waters below. They got off, however, without injury.

Correspondent.

The space usually allowed for answers to correspondents, being occupied by our index, many replys to letters are necessarily laid over until next week.

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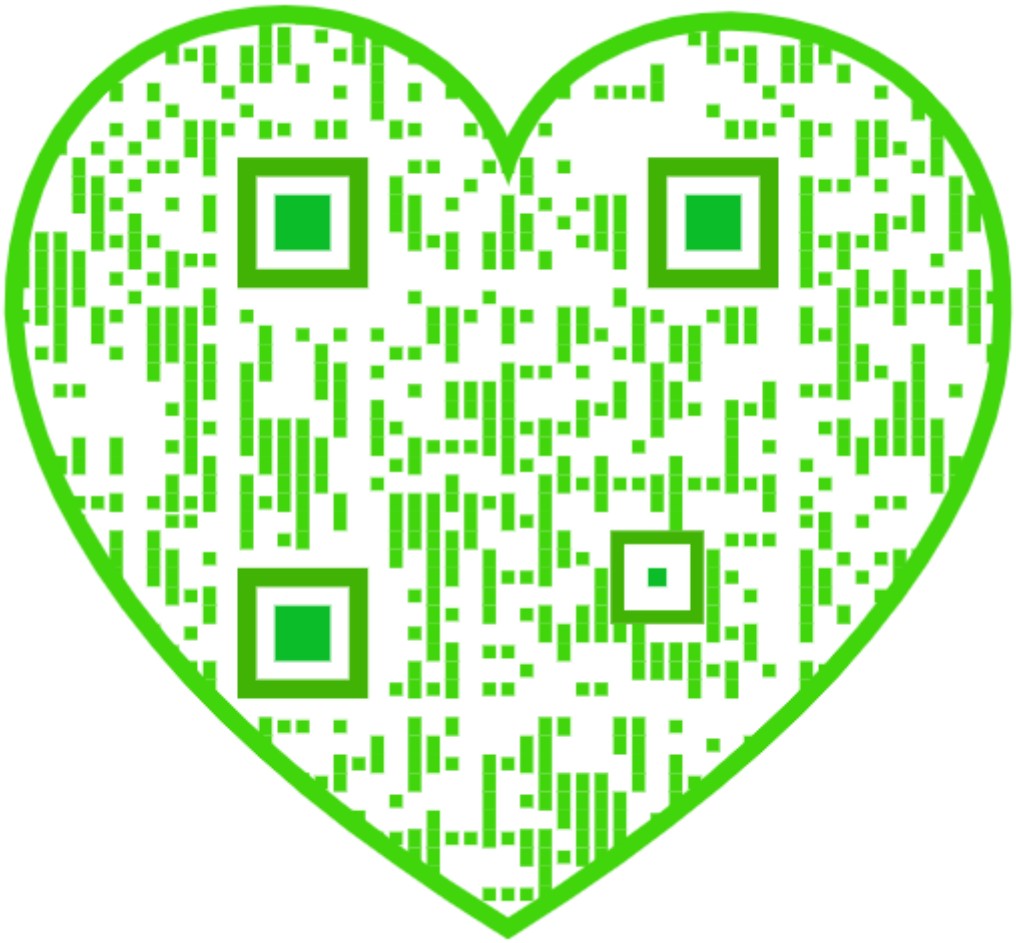

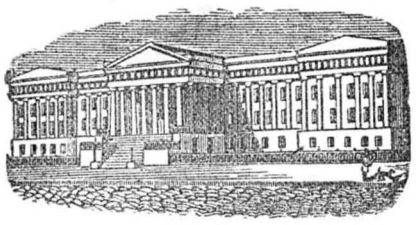

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING AUGUST 31, 1852.

MILLS FOR WASHING VEGETABLES AND MIXING CLAY—By Clark Alvord, of Geddes, N. Y.:

I claim the use of grated hollow cylinders, operating together, so that the grates of one cylinder must be between the grates of another cylinder of like construction—thereby forcing the material operated upon, from the periphery of the cylinder or cylinders, to the inside of such cylinder, or cylinders—thereby mashing, grinding, and mixing the same as set forth.

REVERBERATORY FURNACE—By C. G. Best, of Albany, N. Y:

I claim the reverberatery furnace constructed as described, the fuel, with the fire-box being above the metals to be melted in the chamber, and bringing the flame and heated products of combustion, vertically down through the metals in the chamber, in the manner set forth.

WASH-BOARDS—By Luther Butler, of Kenosha, Wis.:

I claim the curved or circular form of the crimp, giving a better chance for the suds and water to remain amid the clothes, during the process of rubbing, and also keeping the water near the centre of said board—thus rendering the work easier than the old fashioned form.

ROLLER SAW-SET—By Abel Bradway and Elijah Valentine, of Monson, Mass:

We claim the stamps, &c., alternating with the spaces, &c., upon the end of a cylinder, in combination with a beveled cylinder, which is caused to revolve with equal velocity, in the direction opposite to that of the cylinder, arranged in the manner and for the purpose substantially as herein described.

KILNS FOR POTTERY—By Geo. R. Booth, of Hanley, England. Patented in England, June 15, 1843:

I claim the arrangement of the fire hearth below the oven bottom, and provided with suitable apertures for the admission of air, to regulate the combustion, substantially as described, when this is combined with the oven, or heating chamber provided with a tube, or the equivalent thereof, as specified, for discharging the heat above the bottom of the oven, and diffusing it in the oven, and also provided with outlet flues or apertures, at or near the bottom, and with apertures or tubes, at or near the top of the discharge of gases, or steam, all substantially as described.

BLIND OPERATOR AND FASTENER—By J. R Creighton, of Cincinnati, Ohio:

I claim the combination and arrangement of the sliding plate, provided with a notch, and extension rod and handle, with the vibrating link, fastening, and with the catch and notches, by which I am enabled to operate a blind from the inside, by a straight shove or pull, as the case may be, and to fasten it, shut, or partially open, as required.

ARTIFICIAL LEGS—By Jno. S. Drake, of New York city:

I claim the skeleton knee-piece, in combination with the spring attached at its ends, to the upper and lower parts of the leg, as described.

Second. I claim the arrangement of the spring toes on their centre, kept down by the spring, as described.

Third. I claim the locking-piece and hook, to allow of the bending of the leg, as described.

OIL CANS—By Samuel Field and Charles W. Heald, of Barre, Mass.:

We claim the combination of the securing chamber, with the chamber and flange; the whole being constructed and arranged and operating in manner and for the purpose, substantially as set forth.

PRINTING PRESS—By Geo. P. Gordon, of New York city:

I claim the arrangement and application of a cylinder, which always remains stationary in its own position, as well while receiving the form, as when used as a distributing surface.

I do not claim an arm or single frame, to carry one set of rollers around the periphery of a cylinder, (as in the Voorhies Press,) but, I claim the combination and arrangement of several sets of rollers in one frame, to traverse round the periphery of a cylinder, when these sets of rollers, alternately or consecutively pass over the form and admit an impression to be taken, between the time one of the sets leaves the form and the next set arrives to it, for the purpose of giving slow motions to the inking, with rapid impressions upon the same form—thus effecting more speed as regards the amount or number of impressions to be produced in a given time.

I do not claim the continuous sheet; nor feeding a continuous sheet of paper to a printing press: but I claim the arrangement of the guage, guide, pawl, crank, roel, pin, and wheels, in combination with the shears for cutting off the sheet after it is printed, and the cam from which it receives its motion; the whole of these parts operating as described.

WASHING MACHINES—By T. Mudge, of Washington, D. C.:

I claim the providing a Washing Machine, with a hinged flap rubbing board, or its equivalent, for turning the clothes in the tub, in combination with the dasher, and hinged presser, for the purposes set forth.

GOVERNOR FOR STEAM ENGINES—By Geo. S. Stearns, and Wm. Hodgson, of Cincinnati, Ohio:

We claim the combination of the quadrants and the cylindrical rack, arranged and operating substantially as set forth—not confining ourselves to the cylindrical form of the rack, other forms may be used, if found to suit—such as square, or any polygon form.

PROCESS FOR RESTORING SHAPE AND TEMPERING ARTICLES OF HARDENED STEEL—By J. Silvester, of West Bromwich, England. Patented in England, July 17, 1850:

I claim the curing or remedying distortion which has taken place in steel plates, during the operation of hardening, by compressing them between dies previously heated to a sufficient degree to bring back or let down, the temper—the mechanical pressure to be applied, while the plates are in the course of being tempered, (the pressure being continued during the process of tempering.)

BRICK MACHINES—By Arad Woodworth, 3rd, and Samuel Mower, of Boston, Mass. Patented in England, January 24, 1852:

We claim combining the percussion machinery, the ower piston or pistons, and machinery to produce a compression of the top surface of the brick—the whole being substantially as described—not meaning such compression of the same, as is produced by the percussion of the ram, but a separate compression, effected by other means, as described.

We also claim the improvement of constructing each of the orifices of the mould charger with flaring or inclined sides, inclining inwards towards each other, as they descend—the whole being substantially in manner and to effect the object, or overcome the difficulty stated.

We also claim the improvement of combining with the adjustable gate, or striker, a mechanism that will cause it to rise upwards, as the mould charger moves forwards towards the moulds—such rising upwards of the striker being for the purpose explained.

METALLIC STUFFING-BOX PACKING IN STEAM ENGINES. By Ebenezer Winship, of New York city:

I claim the combination of an elastic ring, made to fit tightly on the rod, and loosely in the stuffing-box, and having an intercepting tongue and spring plate, to prevent the steam from escaping through the slot therein, with the plate or its equivalent fitting tightly over the ring, and loosely encircling the rod, and the gasket, or its equivalent, above said plate, substantially as described.

ELECTRO-MAGNETIC FIRE ALARMS—By Henry H. Van Ausdall, of Preble county, Ohio:

I claim the combination and arrangement of a signal wheel with two elastic circuits, so that when one is broken, the wheel may revolve and operate a key in the circuit.

Second. I also claim the mode of constructing an elastic circuit, by breaking, tapping and binding with a combustible material, or equivalent, for the purpose of making it sensitive to fire, as described.

DESIGNS.

PARLOR STOVE—By Ezra Ripley, (assignor to N. S. Vedder,) of Troy, N. Y.

PARLOR STOVE PLATE—By S. A. House, of Mechanicsville, N. Y., (assignor to Hiram House, of Troy, N. Y.,) Two designs.

PORTABLE STOVE FRONT By S. A. House, of Mechanicsville, N. Y., (assignor to Hiram House, of Troy, N. Y.)

Woodworth Patent.

[Concluded from page 406.]

But the other suits are not abandoned. The claim is still made; and the very litigations resorted to for its enforcement are urged upon Congress as pretexts for further bounty. To which of the many phases of the patents is the proposed extension to apply? Is it the original patent of William Woodworth, or the re-issue to the administrator? Is it the old claims, or the new claims? Or is it asked merely as a congressional license for indiscriminate litigation against inventors, and a congressional grant of the taxing power to be exercised for fourteen years by Woodworth and his grantees according to their caprice and discretion within the limits of $15,000,000 annually?

The committee find in the report of one of the trials submitted by Mr. Woodworth in aid of the present application, evidence which, in connection with the facts disclosed by the public records, tends strongly to show the speculating objects which grants of public bounty are sometimes used to promote. In the various memorials of the applicant, this claim has been urged, not as one personal to himself, but common to the children of William Woodworth. He seems to be the only son; and the testimony of his surviving sister, Mrs. Atherton, as a witness in his favor in the case of Woodworth vs. Edwards, on the trial before Judge Woodbury in 1848, shows that her claims at least are in safe keeping without any interposition by Congress. The following is an extract from her testimony on the trial, at page 160 of the published report:

Almira S. Atherton for the plaintiff.

"Was a daughter of William Woodworth, wife of Henry S. Atherton. Has no interest in the patent. Has conveyed all her interest; her husband conveyed it to William W. Woodworth, administrator of her father, and her brother, for $1,500. Her husband did not wish her to be interested in patent rights.—He is a merchant."

The deed from Mr. and Mrs. Atherton was not recorded, but it is recited in the recorded agreement between Woodworth, Wilson, and Evarts of December 16, 1841; and the recital shows that it conveyed "all their interest and claim of, in and to the said letters patent and all renewal or renewals under it." Thus the effect of the two subsequent extensions was not as the government was led to believe to grant to the respective children of the patentee a reward for the father's merit, but to make the purchase by William W. Woodworth, of the share of his sister in the original patent and all future renewals for $1,500, an exceedingly profitable speculation. The agreement of Woodworth with Wilson in 1841, above referred to, shows that the application for the first extension was made in pursuance of a private bargain. Indeed, the whole history of the patent since it has been in the hands of the administrator, seems to be the history of a series of extensive, bold, and successful speculations upon government grants.

Even if there were no other objections to the application of the memorialist, the committee would not feel at liberty to recommend a bill, the effect of which, if passed, would be to lend the sanction of Congress to abuses so bold as to occasion general complaint in every section of the country—to call forth as early as 1850 concurrent resolutions from the two most populous States in the Union, followed up by the legislative condemnation of five States since the renewal of the application now pending before the House.

That there are other objects to be obtained by the passage of such a bill beyond a mere extension, is apparent from the premature manner in which the claim has been pressed. Seven years before the expiration of the present term, and within one month after the second extension began to run, the memorialist was at the doors of Congress demanding a third extension. He succeeded in the first instance in procuring upon his own showing a favorable report from a portion of the House Committee, but subsequent investigation led to an adverse decision by the house. The Senate committee also, after examining the facts promptly decided against the application. The attempt is now renewed, and it is easy to perceive that its success would have an important bearing upon questions involving private rights now in litigation before the courts.

The committee are satisfied by the facts before them, that Congress ought not to lend its sanction to the claims of the owners of the Woodworth patent either by an express or implied affirmance of the various grants which the administrator has heretofore succeeded in procuring. Nor is the application commended to the favorable consideration of Congress by the extraordinary character of the claims which have been made by the proprietors, for the purpose of striking down all other inventions as infringements, and compelling the country to submit to the increased exactions which follow each successive grant from government. Nor do they regard the application as entitled to any additional favor in consequence of the rigor with which the rights vested under the last extension were enforced to the very letter on the bond against prior licensees and purchasers. Nor do they find any inducement to further grants of discretionary power in the rigid forfeitures exacted in the licenses under the present extension, the mutual covenants for maintaining arbitrary prices, and the increased rates of charges which licensees are bound by covenant to exact in those sections of the country where the absence of competition compels the public to acquiesce.

The various grants from the government have invested the memorialist with the most profitable monopoly which was ever granted to a citizen. They have imposed upon the public the most onerous burden of taxation for the benefit of a single man which was ever inflicted upon the country. The profits have been shared by him and his voluntary grantees. The public have borne the burden. That they have borne it so long may well occasion surprise. But when they are asked to bear it longer, the inquiry naturally arises, when is the burden to cease? Are thirty-one States to be taxed for another term of fourteen years that one citizen may become rich enough to satisfy not only himself, but all the grantees with whom he chooses to share the national bounty? If the millions already paid are not sufficient to satisfy the claim, how many millions more are demanded? The country is now paying $15,000,000 annually for work which can be done for $3,000,000. A profit of one hundred per cent. would seem to be sufficient upon an article of indispensable necessity. But even beyond this, there is an excess of $9,000,000 a year, to be paid by the public for fourteen years. And even this furnishes no guarantee that a new extension will not be applied for before the term begins to run. The next Congress may be told, as we are told now, that the extended term has been sold out by the administrator for $50,000, and that the debt due to William Woodworth has not yet been paid to his son.

But the debt has been paid. The application is without a shadow of claim either upon the justice or the bounty of Congress. This patent should no longer stand as a bar to inventive genius; the public should no longer be burdened with its exactions; this department of American industry should no longer be clogged with the revival of an expiring monopoly. The country is one of progress and growth. It is rich in its builders, its mechanics, its artizans; it is rich in its boundless forests; and neither the axe which fells the tree, nor the implements which adapt it to the uses of life should be made the instruments of needless exaction.

The committee respectfully recommend that the application of the memorialist be denied.

The Age of Gold.

We had thought that the age of gold was over, and that the age of iron had commenced, we had considered that the stationary steam engine, the locomotive, the steamboat, and the ten thousand different iron hands now employed to spin, to weave, to sow, to mow, to dig, &c., had made the fine gold dim. In this we have been mistaken, never since the day when old Aaron set up the golden calf for the Hebrew tribes to fall down and worship at the sound of timbril, sackbut, and psaltry, has there been such a bowing down to, and struggling after the glittering gold. The discovery of gold in California has exerted, and is exerting a powerful influence upon the destinies of nations. When gold was first discovered on the Sacramento river, there were only four steamships in the United States, and there was no commerce between the Atlantic States and the western shores of our continent; now what do we see? a country peopled with nearly half a million of inhabitants in two years; a steam fleet of more than twenty huge ships engaged in the traffic between the east and west, besides hundreds of the finest sailing vessels that ever floated on the deep; and to this we have to add a great overland emigration through our continent, and, more wonderful than all, Asia—the China of Asia—that long selt-walled up-land of prejudice and intense foreign hate, has thrown open her portals, and thousands have poured out and are pouring out of them, braving the dangers of the Pacific Ocean to take up their residence under the sway of the great modern Republic. The gold of California has also led to the discoveries in Australia, and thither we now see thousands from the pent up warehouses and workshops of London, Manchester, and Glasgow, hurrrying on the wings of the wind to dig and delve for the attractive metal. How many families have been broken up, how many homes once loved, held sacred and revered have been forsaken, all for the love of gold. We cannot yet tell what the effect of the gold discoveries will be, socially, upon mankind; the world is now excitingly working away at some great problem of its fate. What the effect of California will be upon Asia, what that of Asia upon America and the rest of mankind, we cannot now determine, the future alone will reveal the result; but the working of the problem is worth the study of the sage and philosopher. There seems to be no end to the quantity of gold; the wise men of the East—the European philosophers we mean—who predicted a speedy exhaustion of the golden sands, have turned out to be but indifferent prophets. During the short period of the last fifteen days of July, no less than $2,775,889 of gold dust left California for the Atlantic States. In Australia the produce seems to be nearly as great; gold is beginning to be counted by tons, and we suppose the old *penny weight* will soon have to be blotted out from the table of golden weights altogether. Surely this is the age of gold.

Metropolitan Hotel.

A hotel bearing the above name was opened in this city on Wednesday last week. It is built on the site of the old Niblo's Garden in front, and before it was opened no less than four hundred persons had engaged rooms. A fine house warming in the shape of a splendid public dinner, was given by the gentlemanly proprietors, the Brothers Leland, formerly of the Clinton Hotel, Beekman st. It is the most splendidly furnished hotel in the world; its interior resembles a fairy palace. In one room is the bride's couch; the bedstead cost $1,200, and the whole of the furnishings are in unison. There is one mirror worth $10,000, and vessels of gold and silver abound.

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Scientific American

NEW-YORK, SEPTEMBER 11, 1852.

To Our Subscribers---End of Volume 7 Scientific American.

This number completes volume seven of the Scientific American, and we embrace this opportunity of again returning our sincere thanks to our subscribers, for their kindly and energetic support of a journal devoted to the arts and sciences, which has arisen from its day of small things, of a few hundred subscribers in 1845, to 16,000 in 1852. We have added improvement to improvement every year since the Scientific American was established, and we have always endeavored to present information upon every subject which we thought would be of general benefit. In this volume we have published a great mass of useful information on boilers, which had to be collected from many different sources—information on this subject being very difficult to obtain. We know that we have done a great amount of good, and we also know that in no other periodical nor book can the same amount of knowledge be found. We have illustrated and described more new inventions than any other periodical whatever, and as our readers belong to every art, trade, and profession, the subjects we have presented have been exceedingly varied in character and scope. We have illustrated and described engines and boilers for engineers; distilling apparatus for distillers of resin oil, &c.; bridges, houses, and railroads for architects and civil engineers; coilers and packers, and carding engines for manufacturers; electro magnetic engines for electricians; water wheels for millwrights; harvesting machines, &c., for farmers; pumps for plumbers, &c., in short, we cannot enumerate them all in one short article; for variety they have never been equalled, in importance never surpassed. We say it, without any intention to boast, that the Scientific American is the cheapest and best mechanical paper in the world. Our means and facilities for acquiring information, our experience in conducting such a paper, have enabled us to do what we have done, and our advantages are continually improving, so that our next volume may reasonably be expected to surpass any of the preceding ones. We request our readers to turn over their back numbers and re-examine them carefully, and then put the question to their hearts, "can the same amount of useful information, upon the same subjects, be obtained anywhere else, and has there ever been a book published with so many good wood engravings for four times the price?" we are confident the answer will be in the negative. We have labored assiduously, and will still strive to keep the Scientific American at the head of all such periodicals on our continent. It is held to be, and is quoted as good authority by all papers and journals in our own and foreign countries; it is the repertory of American inventions. We have always exercised great freedom in giving our opinions upon different inventions and subjects, but we have never—and never will—descend to personalities, but will treat every man, and anything which he advances, with candor and courtesy.

Repairing a Ship's Bottom while Afloat.

The Norfolk Beacon states that the operation of repairing a ship's bottom while afloat, which was described on page 370, Sci. Am., as having been performed on a frigate in the British Navy, had been practiced successfully at Norfolk, Va., as far back as 1827, by a Mr. Brodie. It was applied to the Guerriere frigate, and was the means of saving government no less than $50,000. A present of $1,000 was made to Mr. Brodie for his clever application of a most useful improvement.

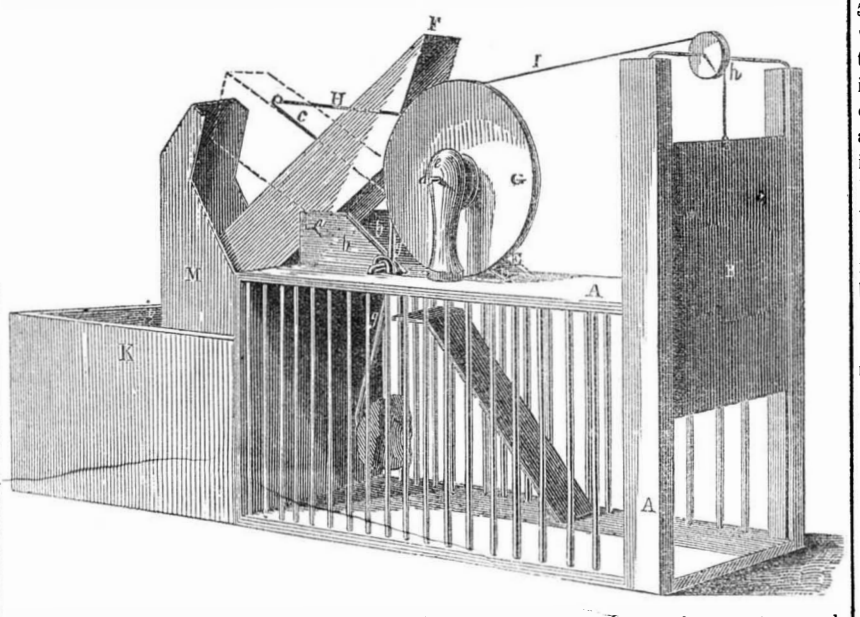
The Cotton Crop.

A correspondent of the Savannah Georgian states that the cotton caterpiller has made its appearance simultaneously in all parts of the country, and the Sea Island crop is suffering and will suffer severely. By the last advices from Europe cotton was active, and if there be a deficiency in this year's crop, we may expect a considerable rise in the price before the autumn season is over.

PATENT RAT-TRAP.

This figure is a perspective view of the self-setting rat trap invented by John I. Vedder, of Schenectady, N. Y., for which a patent was granted on the 8th of last June. The rat who enters this trap is caught, and then made to re-set the trap to catch another of his tribe, by his own weight.

A is the box of the trap into which the rat first enters through the opening below the door, B. In the top of box A there is an opening, D, over which there is placed a spout, F, which is made to tilt on axes, *a*, by the rat who runs up into it, when the door, B, is closed behind him, after having nibbled at the bait on the hook, g. The door is held up by a cord, I, passing over pulley *h*, and secured to pulley G, which is a larger pulley turning on an axis, *d*, in the posts *e*. In the groove of this pulley there is a notch upon which the top part of the bait hook, *g*, catches when the trap is set. The cord, H, is secured to a rod, C, and is also attached to pulley, G. This cord pulls up the tilting tube, F, over a guard or shield, E *b*, when the door, B, falls or is closed. Behind the box, A, is another, K, which is filled with water. It has an opening at the top with a



funnel mouth, M, which guards it on three sides. When the rat enters the box, and by nibbling on the bait on hook, *g*, the said hook is detached from the notch on pulley, G, the door, B, drops by its own weight in an instant, and closes the passage behind Mr. Rat; there is only one place then where he sees light, namely, up the inclined tube, F; he bolts at once up there, and as he rushes along and lifts a light grate, his weight tilts it over, when its upper end drops down into the funnel, M, and the rat is precipitated head foremost into the water chamber, K, through a self-closing trap door, and meets with a watery grave. The canting over of the tube, F, draws over the pulley, G, so that the door, B, is lifted up by the cord, the hook, *g*, at its top, catches the notch, *f*, in pulley, G, and thus the door is kept open for another rat to march forward to his doom. The unlatching of the catch of the hook, *g*, with the notch in the pulley, shuts the door, B, and brings the tube, F, upon its axis, so as to stand above the hole in the top of box A, for the rat to run up, and then the weight of the rat, by canting over the said tube with its exit end into the funnel, M, lifts up the door and latches it with the hook again, and thus the trap is operated by the drowning of the animals, each preceding one setting the trap for his follower to fall in the same sensible predicament, the best possible for all kinds of rats. The sides of the box, A, are left open to show the hook inside; the trap is simple and ingenious.

More information may be obtained by letter addressed to Mr. Vedder, at Schenectady.

NEW LUBRICATING BALANCE BOX.---Fig. 1.

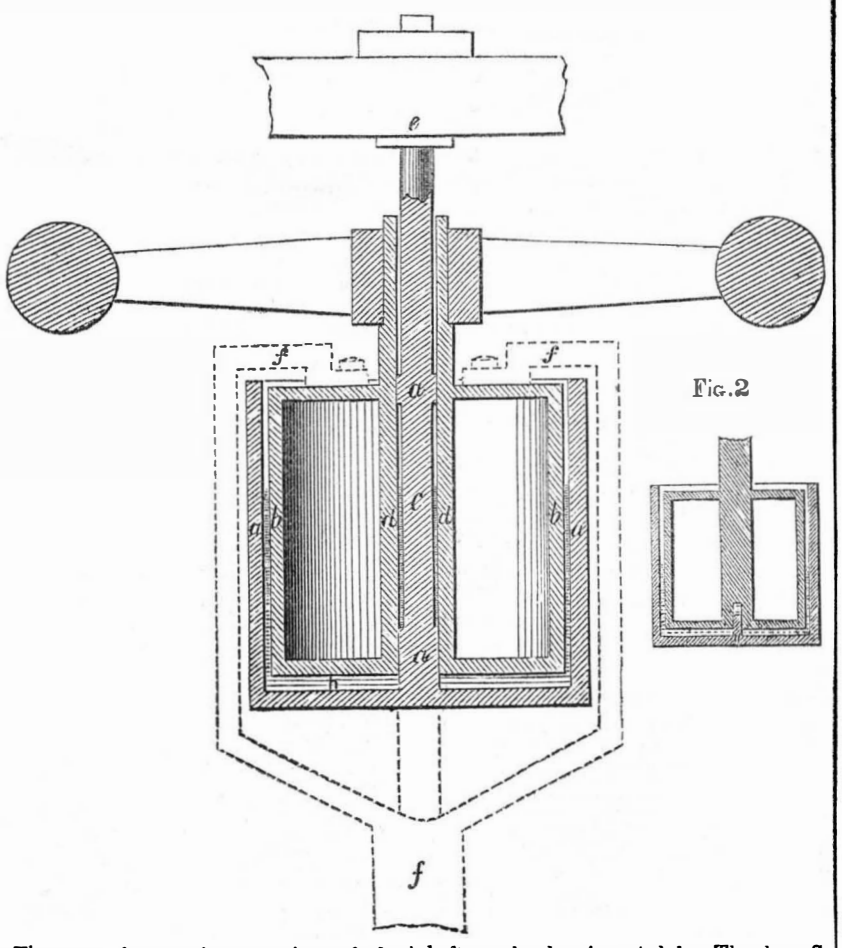


Fig. 2

The annexed engravings are views of a lubricating box for the journals of mill spindles, shafts, and axles, invented by Theodore S. Minniss, of Meadville, Crawford Co., Pa.—The nature of the invention consists in sustaining and upbearing the gudgeons of shafts for mill spindles and other revolving bodies, upon or by the pressure of fluids, in such a manner that the friction is vastly diminished.

Fig. 1 is a vertical section as applied to the upper gudgeon of a mill spindle, with the shaft represented in dotted lines. Figure 2 is a view of the same applied to the lower gudgeon or journal, it is also applicable to horizontal shafts. The invention is based upon the particular principle that a hollow body will sustain as much weight when suspended in liquid, as the weight of the liquid it can contain, such as a vessel that will contain 50 lbs. of liquid, will support that amount of weight in the liquid; the size of this box, therefore, is proportioned to the weight which it is designed to sustain. It consists mainly of two cases, *a* and *b*; the one, *b*, is a lighter and rotates on the lubricating liquid, *h*, which is contained in case *a*. The outer case may be made in some places by sinking a pit in the earth and lining it with cement, which will furnish a cheap and enduring cistern; *c* is a vertical shaft permanently secured to the bottom and centre of case, *a*, and it is long enough to pass through tube *d*, and through both heads of the lighter case, *b*, and be permanently secured to the beam, *e*; the shaft, *c* may be of smaller diameter at its middle part. The main shaft or spindle, *f*, is terminated in two or more branches, and secured to the top of the lighter, *b*, at *f f*, as represented in dotted lines. When it is applied to the lower gudgeon the shaft rises directly from the lighter case, and a centre-pin, *g*, fig. 2, is only necessary to keep them in place; thus, by proportioning the lighter case to the weight to be upborne or sustained by the liquid, *h*, the friction is greatly diminished. By this invention the most heavy shaft can be sustained in equilibrium, thus obviating the friction caused by the weight of the shaft. It appears to be an excellent improvement for railroad turn-turn tables. Water is the fluid designed to be employed as being the cheapest for lubricating, and there can be no doubt but a weight of several tons on a shaft may be so balanced that it can be turned with the forefinger of a boy. This invention will no doubt arrest the attention of all those interested in machinery.

More information may be obtained by letter addressed to the inventor, or to Wm. J. Rhees, of the Census Office, Washington.

Annual Fair of the South Carolina Institute.

The Fourth Annual Fair of this Institute for the promotion of the arts, mechanical ingenuity, and agricultural pursuits, is to be held in Charleston, S. C., commencing on the 15th of next November. It is expected that the opening address will be delivered by Senator Soule, of La., and the agricultural address by Edmund Ruffin, of Va. Specimens in every branch of mechanism and arts, together with agricultural products of every description will be exhibited. We have no doubt but it will be an excellent Fair; there are some excellent mechanics about Charleston, and they feel a great interest in the promotion of the mechanic arts in South Carolina. Every citizen should endeavor to make the Fair something to be proud of. The former exhibitions of this institute have been very successful, and every year should show some advancement. M. L. Hatch, Esq., of Charleston, is Chairman of the Committee of Arrangements, and those who wish to be exhibitors can get all the requisite information by addressing him by letter.

New Postage Law.

The postage law has been so amended that our subscribers will have to pay only about one-half the amount hitherto paid. The law has been published in some papers, but we believe some important clauses have been left out. We will say more upon the subject next week.

As we understand the new law, the Scientific American will cost only 6¼ cents postage, per quarter, delivered at any post office in the State of New York, and but 13 cents per quarter delivered in the most remote part of the United States.

We would also state that all newspapers are to be delivered free of postage when not forwarded out of the county in which they are published.

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